

1 CLAIMS

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3 1. A structural support beam for use in building
4 and construction comprising a support frame defining
5 at least one volume, said support frame being of a
6 first material and said at least one volume being
7 in-filled with a second material.

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9 2. A structural support beam as claimed in claim
10 1, wherein the support frame comprises two spaced
11 apart flanges connected by at least two outer
12 support webs.

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14 3. A structural support beam as claimed in claim
15 2, wherein each outer support web connects lateral
16 portions of the flanges.

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18 4. A structural support beam as claimed in claim
19 2 or 3, wherein one or more additional outer support
20 web(s) is/are positioned over one or both of the
21 existing outer support webs.

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23 5. A structural support beam as claimed in any of
24 claims 2 to 4, wherein one or more inner support
25 webs connect the flanges in an intermediate position
26 between the outer support webs.

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28 6. A structural support beam as claimed in any of
29 claims 2 to 5, wherein one or more formations are
30 provided in each flange to accommodate the outer
31 support webs.

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1 7. A structural support beam as claimed in claim
2 5, wherein one or more formations are provided in
3 each flange to accommodate the inner support web or
4 webs.

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6 8. A structural support beam as claimed in claim 6
7 or 7, wherein the formations are one or more of
8 grooves, recesses and cut-out portions.

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10 9. A structural support beam as claimed in any of
11 claims 2 to 5, wherein the flanges are rectangular
12 in shape.

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14 10. A structural support beam as claimed in claim
15 9, wherein each flange is fully interposed between
16 the outer support webs.

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18 11. A structural support beam as claimed in any of
19 claims 2 to 8, wherein each flange is provided with
20 a reduced width portion to define a T-shaped flange.

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22 12. A structural support beam as claimed in claim
23 11, wherein each reduced width portion is fully
24 interposed between the outer support webs.

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26 13. A structural support beam as claimed in claim
27 11, wherein the lateral edges of the other portions
28 are adapted to be flush with the outer surfaces of
29 the outer support webs.

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31 14. A structural support beam as claimed in claim
32 11, wherein the lateral edges of the other portions

1 are adapted to extend beyond the outer surfaces of
2 the outer support webs.

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4 15. A structural support beam as claimed in any of
5 claims 2 to 14, wherein a further end-flange is
6 connected to the outer end of each existing flange.

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8 16. A structural support beam as claimed in claim
9 15, wherein the lateral edges of each end-flange are
10 adapted to be flush with the outer surfaces of the
11 outer support webs.

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13 17. A structural support beam as claimed in claim
14 15, wherein the lateral edges of each end-flange are
15 adapted to extend beyond the outermost surfaces of
16 the outer support webs.

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18 18. A structural support beam as claimed in any of
19 claims 2 to 14, wherein metal end plates are
20 connected to the outer end of each flange.

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22 19. A structural support beam as claimed in any of
23 claims 15 to 17, wherein metal end plates are
24 connected to the outer end of each end-flange.

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26 20. A structural support beam as claimed in any
27 preceding claim, wherein the second material is less
28 dense than the first material.

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30 21. A structural support beam as claimed in any
31 preceding claim, wherein the second material is a
32 plastics foam material.

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2 22. A structural support beam as claimed in any
3 preceding claim, wherein the second material is
4 adapted to give the support beam improved thermal
5 and/or sound insulating properties.

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7 23. A structural support beam as claimed in any
8 preceding claim, wherein the second material is
9 adapted to give the support beam improved structural
10 properties.

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12 24. A structural support beam as claimed in any
13 preceding claim, wherein the support frame is made
14 from timber materials.

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16 25. A structural support beam for use in building
17 and construction comprising a timber based support
18 frame formed from two spaced apart rectangular
19 flanges connected by at least two outer support webs
20 wherein the timber based support frame defines at
21 least one volume in-filled with a plastics foam
22 material; and wherein the plastics foam material is
23 bonded to the flanges and webs.

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25 26. A structural support beam as claimed in claim
26 25, wherein the outer support webs extend over the
27 full depth of the flanges.

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29 27. A structural support beam as claimed in claim
30 25 or 26, wherein the flanges are formed from solid
31 or laminated timber material and the webs are formed
32 from timber sheet material.

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2 28. A method of manufacturing the structural
3 support beam of claim 1, said method comprising the
4 steps of:

5 (i) connecting two spaced apart flanges by means of
6 at least two outer support webs to form a support
7 frame defining at least one volume; and
8 (ii) filling said at least one volume with an in-
9 fill of material.

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11 29. The method of claim 25, further comprising the
12 additional step of bonding said in-fill of material
13 to the support frame.

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15 30. The method of claim 25, further comprising the
16 additional step of gluing and/or mechanically fixing
17 the outer support webs to the flanges.

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